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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/343,684	06/30/1999	ALICJA BORYSOWICZ	1029/182	8228

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EXAMINER
VINCENT, SEAN E

ART UNIT	PAPER NUMBER
1731	15

DATE MAILED: 12/04/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	09/343,684	BORYSOWICZ ET AL.
	Examiner	Art Unit
	Sean E Vincent	1731

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 September 2002* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *10 and 12-18* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *10 and 12-18* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☒ The proposed drawing correction filed on *29 August 2001* is: a)☒ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☒ Interview Summary (PTO-413) Paper No(s). *13* .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

Claim Rejections - 35 USC § 103

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

2. Claims 10, 12-14 and 16-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Aoki (US 5272621) in view of Haissig et al (US 5822740) and Victor et al (IEEE article).

3. Aoki teaches systems for controlling the melting of a glass batch in a glass melting furnace using fuzzy logic with fuzzy prediction. (see the figures, col. 4, line 22 to col. 7, line 55, col. 12, line 3 to col. 13, line 41). It is the position of the examiner that the claimed 'learning device' reads on the means for evaluating operator input disclosed by Aoki. In col. 13, lines 13-22, glass pull and state information is described as being 'known input information' in addition to temperature inputs. Aoki was cognizant of multiple inputs "such as measurable disturbances (e.g. nature and state of raw material, temperature, etc.) as well as the manipulated inputs."

4. The term "sensors for detecting different types of operating conditions in a furnace" is taken by the examiner to be a means-plus-function limitation defined by the applicant's specification at page 7, line 24 to page 8, line 5 to include position sensors, end-of-travel sensors, flow-rate sensors, pressure sensors and temperature sensors and known equivalents in the art. Haissig et al, provided as a teaching reference, discloses fuzzy control systems used for furnace control, water heater control and other purposes and clearly shows different types of sensors known in the heating control arts including flow and pressure sensors (see abstract, fig. 1e, claim 9 and col. 9, lines 46-60). It is the position of the examiner that this broad means-plus-function limitation reads on Aoki's general disclosure of detecting measurable disturbances. While disturbance measuring sensors other than temperature sensors are not named in Aoki et al, the

suggestion evident from Aoki's disclosure is that known disturbances affecting the system should be measured with the appropriate sensors. Other appropriate sensors known in the art can be found in Haissig et al.

5. Aoki does not teach the inclusion of a video camera or image processing means. Victor et al teaches a computer vision system for acquiring and processing images of flames, combustion chamber walls and nonfused materials in the melting tank of a glass furnace (see entire article). Victor et al also teaches Baysian and neural network classification means, means for controlling furnace bubblers, and learning means as well as using flame classification data in a feedback controller to operate the furnace. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate the image acquisition and processing system, the classification and learning means and the flame and bubbler control means of Victor et al into the apparatus of Aoki because Victor et al teaches that it would result in a fast control system implementation.

6. Claims 15 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Aoki and Victor et al as applied to claim 12 above and further in view of Miller (US 4409012).

7. Aoki does not teach the inclusion of a video camera or image processing means. Victor et al does not teach image analysis of a plurality of batch parameters, only for "the presence on nonfused materials". Miller teaches a glass furnace in which a video camera is positioned to view the surface of the batch and melt mixture wherein the video signal is digitized and processed for monitoring the operation of the furnace bubblers (see figures; abstract; col. 1, lines 39-50; col. 2, lines 30-39 and lines 60-65; col. 3, lines 51-68; col. 4, lines 1-46; col. 5, lines 1-12; col. 7, lines 24-65). It would have been obvious to a person of ordinary skill in the art at the time

the invention was made to use the batch monitoring system of Miller within the apparatus of Aoki and Victor et al because Miller teaches that it was a more efficient monitoring means.

Response to Arguments

8. Applicant's arguments filed September 12, 2002 have been fully considered but they are not persuasive.

9. In response to the argument that Aoki does not teach sensors for detecting different types of operating conditions in a furnace, the examiner disagrees. Surface state of the molten glass is specifically mentioned as a factor effecting thermal characteristics of the furnace (col. 12, lines 62-65). Multiple factors are used as inputs (col. 13, lines 17-22). Aoki was cognizant of multiple inputs "such as measurable disturbances (e.g. **nature and state of raw material, temperature, etc.**) as well as the manipulated inputs." Haissig et al is provided to show that flow and pressure sensors are well known in the art.

10. In response to the argument that Miller's system for estimating the amount of batch and melt present in a viewed region had no application in Aoki, the examiner disagrees. Aoki was cognizant of multiple inputs "such as measurable disturbances **(e.g. nature and state of raw material,** temperature, etc.) as well as the manipulated inputs." It is clear that an image analysis system estimating batch qualifies as a measurable disturbance known to be important in Aoki.

11. In response to the argument that Victor et al merely classifies flames, the examiner disagrees. Note the two bulleted items bridging pages 477 and 478 ("The system described can be useful in two ways:") which clearly suggest using the classifier output or even some of the classifier input (the 'features' used to classify the flame) in a feedback control strategy.

Moreover, the third full paragraph in the second column of page 470 states, "The system described in this paper was designed **not only to synthesize useful information for monitoring and diagnostic purposes but also to deliver this information in a way suitable to be integrated in the control system itself.**" Victor et al, therefore, does not stop at flame classification. Furthermore, Victor et al taught that its vision system could be used for other kinds of monitoring (see page 470, col. 2, first full paragraph).

Conclusion

1. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

2. A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

3. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sean E Vincent whose telephone number is 703-305-3607. The examiner can normally be reached on M - F (8:30 - 6:00) Second Monday Off.

4. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven P Griffin can be reached on 703-308-1164. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

5. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0651.

Sean E Vincent
Primary Examiner
Art Unit 1731

S Vincent
November 27, 2002